

I claim:

*Sub A1*

1. A network system comprising:  
a plurality of resources, some of which being  
incompatible with others;  
a network interconnecting the resources;  
5 an arbiter resident in each of the resources for  
sending messages via the network and for receiving messages  
via the network wherein each arbiter independently reviews  
and processes the messages from other arbiters of other  
resources so that the resources communicate directly with  
10 each other without the need for a master controlling program  
and without the need for other gateway for controlling and  
processing the messages as the messages are transmitted  
between resources.

2. A network system of claim 1 wherein the network  
includes a distributed computing environment interconnecting  
systems using different operating systems and networking  
systems and wherein the arbiter message comprises ASCII text  
5 files for the transmission of instructions between  
resources.

3. A system of claim 1 wherein the arbiter message  
comprises independent task arbiters operating across the  
network that can dynamically interact with other task  
arbiters without the need for a central master control  
5 system, wherein said independent task arbiters are  
independent network agents acting under the sole control of  
the messages being received, and wherein said resources  
communicate directly with other resources via the  
independent task arbiters without the intervention of any  
other process.

4. A system of claim 3 wherein the independent message arbiters provide asynchronous messaging between resources of the network so that each generated message is transmitted through the network independent of any other messages and 5 the transmitted message will be acted on as it is received by the destination resource.

5. A system of claim 4 wherein the originating resource executes other tasks after transmitting the message thereby creating an intrinsically multi-tasking and multi-threaded control system such that multiple arbiter messages 5 can be transmitted through the network independently between multiple resources.

6. A system of claim 3 wherein the destination arbiter determines whether any necessary data or programs are available for executing the controlled process and writes a control file instructing other network arbiters to transmit the necessary data or programs to the destination arbiter when the destination arbiter determines that the necessary data or programs are not available.

7. A system of claim 1 wherein each arbiter employs messages which are encrypted after creation at the local resource so that the network is substantially secure.

8. A system of claim 1 wherein the arbiter messages include text that provide instructions for interconnecting resources across a network or interconnecting resources within a single computer.

9. A system of claim 1 wherein each resource processes the arbiter messages in its background while performing other functions in its foreground.

5 10. A system of claim 9 wherein adding other computer program functions is accomplished by executing arbiter instruction files in the background so that programs that provide additional functions can be executed by arbiters that can write the instruction files whereby this execution can be so tightly bound that the executed programs appear to be part of the originating program.

5 11. A system of claim 1 further comprising means for providing for the remote distribution of data and software by directly controlling linked computer systems so that executed programs can do such things as copy files to remote locations and combine data and/or program files with execution instructions necessary to process the data files.

5 12. A system of claim 1 wherein the network handles time independent instructions and wherein the arbiters are programmed to execute only at certain times and the programs themselves can be programmed to execute at specific times or intervals by the resources whereby network traffic can be controlled to minimize traffic volume or processor requirements at particular times.

13. A system of claim 1 wherein the arbiter includes a message replicating arbiter that uses routing information to move messages from one scratch space to another and that determines the routing tree between arbiters.

Sub A2 1 14. A message system for transmitting messages on a network between resources interconnected by the network, said message system comprising:

5 an arbiter resident in each of the resources for sending messages via the network and for receiving messages via the network, each said arbiter independently reviewing

Sub A<sup>2</sup> 1 and processing the messages so that the resources communicate directly with each other without the need for a master controlling program and without the need for other gateway for controlling and processing the messages as the messages are transmitted between resources.

Sub A<sup>3</sup> 1 15. An inter process peer to peer messaging system for communicating between a plurality of networked resources, some of which employ operating systems which are incompatible with each other, said system comprising:

5 an arbiter message originator associated with each of the resources for providing an arbiter message to be sent to the other resources, the arbiter message instructing one of the other resources to execute one or more of the following: remote program execution, data transport, message communication, status communication, arbiter identification, data encryption, message encryption, and relocation of computer resources;

10 15 a message arbiter receiver associated with each resource for receiving the arbiter messages from the other resources and for responding to the received arbiter message by executing one or more of the following: retransmitting the arbiter message to another one of the resources; and deciphering, interpreting and executing the received arbiter message wherein the arbiter message originator and the arbiter message receiver do the actual communication between their respective resources without the need for a master controlling program and without the need for other gateway for controlling and processing the messages as the messages are transmitted between resources.

20 Sub A<sup>4</sup> 1 16. An inter process peer to peer messaging process for communicating between a plurality of networked resources, some of which employ operating systems which are

5 Sub-Aux 1 incompatible with each other, said process comprising the steps of:

10 transmitting an arbiter message from one resource to the other resources, the arbiter message instructing one of the other resources to execute one or more of the following: remote program execution, data transport, message communication, status communication, arbiter identification, data encryption and message encryption and relocation of computer resources; and

15 receiving the arbiter messages from the other resources and for responding to the received arbiter message by executing one or more of the following: retransmitting the arbiter message to another one of the resources; and interpreting and executing the received arbiter message wherein the actual communication between their respective resources is accomplished without the need for a master controlling program and without the need for other gateway for controlling and processing the messages as the messages are transmitted between resources.

20 17. The process of claim 16 wherein the resources originate messages of ASCII text files and wherein the resources identify the system identity of messages from the text file.

18. The process of claim 17 wherein the text files contain a digital signature.